

## 1200V IGBT Wafer

### Ordering Information

| Wafer Name | CDJX877IG1200AF | Chip Name | / |
|------------|-----------------|-----------|---|
|------------|-----------------|-----------|---|

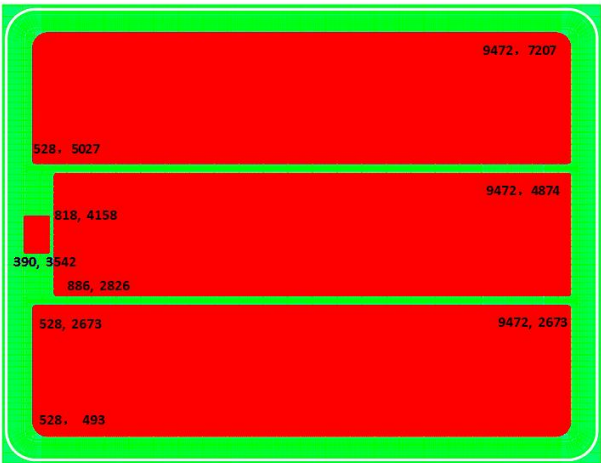
#### Applications

- Industrial Motor Drivers
- Inverter
- Welding
- UPS

#### Features

- ① Field Stop Planar Gate IGBT
- ② Low Collector-Emitter saturation voltage
- ③ High short circuit capability
- ④ Low swiching losses

### Die outline and Info.

|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><math>V_{CE}=1200V, I_C=75A</math></p> <p><math>V_{CE(sat)}=2.3V</math></p> <p>Die Size: 10000 <math>\mu m</math> * 7700 <math>\mu m</math> (含划片槽)</p> <p>Gate Pad Size: 428 <math>\mu m</math> * 616 <math>\mu m</math></p> <p>Source Pad Size: 8586 <math>\mu m</math> * 2048 <math>\mu m</math> * 3, With PA Layer</p> <p>Back Metal: AlTiNiAg, 1.5<math>\mu m</math></p> <p>Front Metal, Thickness: AlSiCu, 4<math>\mu m</math></p> <p>Gross Die: 177</p> |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Mechanical Data

|                                             |                                                                                 |
|---------------------------------------------|---------------------------------------------------------------------------------|
| Nominal Back Metal Composition:             | AlTiNiAg 1.5 $\mu m$                                                            |
| Nominal Front Metal Composition, Thickness: | AlSiCu(98.5%-1%-0.5%) 4 $\mu m$                                                 |
| Wafer Diameter:                             | 150 mm (6 inch)                                                                 |
| Wafer Thickness:                            | 130 $\mu m$                                                                     |
| Minimum Street Width                        | 60 $\mu m$                                                                      |
| Reject Ink Dot                              | ink                                                                             |
| Recommended Storage Environment:            | Store in original container, in desiccated nitrogen, with no contamination      |
| Recommended Die Attach Conditions:          | For optimum electrical results, die attach temperature should not exceed 300 °C |

## Electrical Characteristic Note\*

( Device Major Electrical Characteristics for TO-247P package Reference ;  $T_{vj}=25^{\circ}\text{C}$  unless otherwise specified.)

| Parameter     | Description                                  | Min.                                                  | Typ. | Max.      | Test Conditions                                                    | Unit               |
|---------------|----------------------------------------------|-------------------------------------------------------|------|-----------|--------------------------------------------------------------------|--------------------|
| $V_{(BR)CES}$ | Collector-to-Emitter BV                      | 1200                                                  | --   | --        | $V_{GE} = 0V, I_C = 250\mu A$                                      | V                  |
| $V_{GES}$     | Gate-to-Emitter Voltage                      | --                                                    | --   | $\pm 30$  | NA                                                                 | V                  |
| $V_{CE(sat)}$ | Collector-to-Emitter saturation Voltage      | --                                                    | 2.3  | 2.8       | $V_{GE} = 15V, I_C = 75A$                                          | V                  |
| $V_{GE(th)}$  | Gate-to-Emitter Threshold Voltage            | 4.8                                                   | --   | 6.6       | $V_{CE} = V_{GE}, I_C = 1mA$                                       | V                  |
| $I_{CES}$     | Collector-to-Emitter Leakage Current         | --                                                    | --   | 10        | $V_{CE} = 1200V, V_{GE} = 0V, T_{vj} = 25^{\circ}\text{C}$         | $\mu A$            |
| $I_{GES}$     | Gate-to-Emitter Leakage Current              | --                                                    | --   | $\pm 100$ | $V_{GE} = \pm 30V$                                                 | nA                 |
| $C_{ies}$     | Input capacitance                            | --                                                    | 6221 | --        | $V_{GE} = 0V, V_{CE} = 25V, f = 1MHz$                              | pF                 |
| $C_{res}$     | Reverse transfer capacitance                 | --                                                    | 140  | --        |                                                                    | pF                 |
| $t_{d(on)}$   | Switching time<br>*Reference characteristics | --                                                    | 208  | --        | $V_{CC} = 600V, I_C = 75A$<br>$V_{GE} = 0/15V$<br>$R_g = 25\Omega$ | ns                 |
| $t_r$         |                                              | --                                                    | 42   | --        |                                                                    | ns                 |
| $t_{d(off)}$  |                                              | --                                                    | 398  | --        |                                                                    | ns                 |
| $t_f$         |                                              | --                                                    | 155  | --        |                                                                    | ns                 |
| $T_{sc}$      | Short circuit withstand time                 | 10                                                    | --   | --        |                                                                    | $\mu s$            |
| $T_{vj}$      | Operating Junction and                       | -40 $^{\circ}\text{C}$ to 175 $^{\circ}\text{C}$ Max. |      |           |                                                                    | $^{\circ}\text{C}$ |
| $T_{STG}$     | Storage Temperature Range                    |                                                       |      |           |                                                                    |                    |

### Note\*

Electrical characteristics are reported for the reference packaged part (TO-247P) and can not be guaranteed in die sales form. Variations in customer packaging materials, dimensions and processes may affect parametric performance.

### Shipping

- One shipping options is offered as standard.
- Un-sawn wafer

### Handling

- Product must be handled only at ESD safe workstations. Standard ESD precautions and safe work environments are as defined in MIL-HDBK-263.
- Product must be handled only in a class 10,000 or better-designated clean room environment.

### Wafer/Die Storage

- Proper storage conditions are necessary to prevent product contamination and/or degradation after shipment.
- Un-sawn wafers and singulated die can be stored for up to 12 months when in the original sealed packaging at room temperature (45% +/- 15% RH controlled environment).
- Un-sawn wafers and singulated die that have been opened can be stored when returned to their containers and placed in a Nitrogen purged cabinet, at room temperature (45% +/- 15% RH controlled environment).
- Note: To reduce the risk of contamination or degradation, it is recommended that product not being used in the assembly process be returned to their original containers and resealed with a vacuum seal process.
- Sawn wafers on a film frame are intended for immediate use and have a limited shelf life.

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